2016 Spring Electrofishing (SEII) Summary Report

Pensaukee Lake (WBIC 415000)

Shawano County

Introduction and Survey Objectives

In 2016, the Department of Natural Resources conducted a one night boomshocking survey of Pensaukee Lake in order to provide insight and direction for the future fisheries management of this water body. Primary sampling objectives of this survey are to characterize species composition, relative abundance and size structure. The following report is a brief summary of the activities conducted, general status of fish populations and future management options.

Acres: 109
Lake Type: Spring
Regulations: Statewide Default Regulations

Shoreline Miles: 3.4
Public Access: 1 public access

Maximum Depth (feet): 49

WISCONSIN DNR CONTACT INFO.

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Survey Information							
Site location	Survey Date	Water Temp. (F)	Target Species	Total Miles Shocked	No. of Stations	Gear	Dippers
Pensaukee Lake	5/23/2016	73	All	3.14	5	Boomshocker	2

Survey Method

- Pensaukee Lake was sampled according to spring electrofishing (SEII) protocols as outlined in the statewide lake assessment plan. The primary objective for this sampling period is to count and measure adult bass and panfish. Other gamefish may be sampled but are considered by-catch as part of this survey.
- The entire shoreline was sampled with a boomshocker. All fish captured were identified to species and measured for length. A subsample of fish were weighed and age structures collected for age and growth analysis.
- Fish metrics used to describe fish populations include proportional stock density, catch per effort, length frequency distribution and mean age at length.

Fish Metric Descriptions
PSD, CPUE, LFD and Growth

Proportional Stock Density (PSD) is an index used to describe size structure of fish. It is calculated by dividing he number of quality size fish by the number of stock size fish for a given species. PSD values in the 30 to 50 percent range generally describe a balanced fish population.

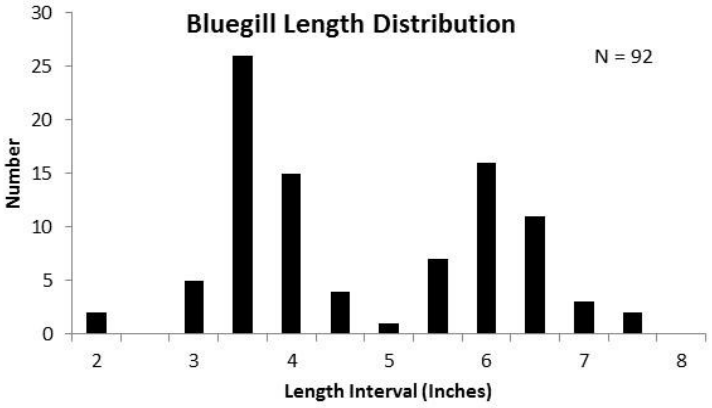
Catch per unit effort (CPUE) is an index used to measure fish population relative abundance which simply refers to the number of fish captured per unit of distance or time. For lake surveys we typically quantify CPUE by the number and size of fish per mile of shoreline. CPUE indexes are compared to statewide data by percentiles. For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state.

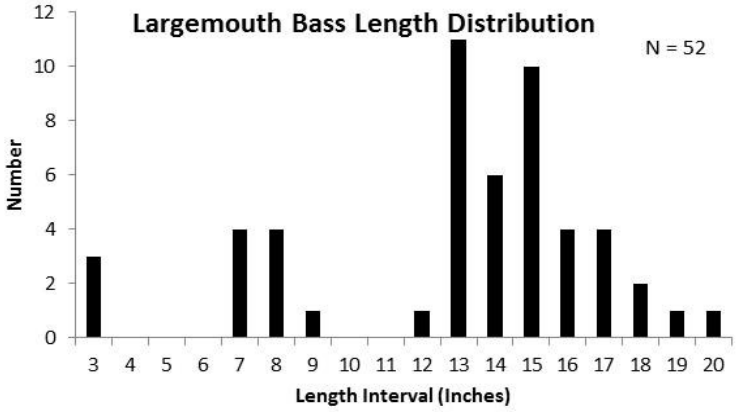
Length frequency distribution (LFD) is a graphical representation of the percentage of fish captured by one inch size intervals. Smaller fish (or younger age classes) may not always be represented in the length frequency due to different habitat usage or sampling gear limitations.

Mean Age at Length is an index used to assess fish growth. Growth structures (otoliths, spines, or scales) are collected from a specified length bin of interest (e.g. 7.0-7.5 inches for bluegill). Mean age is compared to statewide data by percentile with growth characterized by the following benchmarks: slow (<33rd percentile); moderate (33rd to 66th percentile); and fast (>66th percentile).

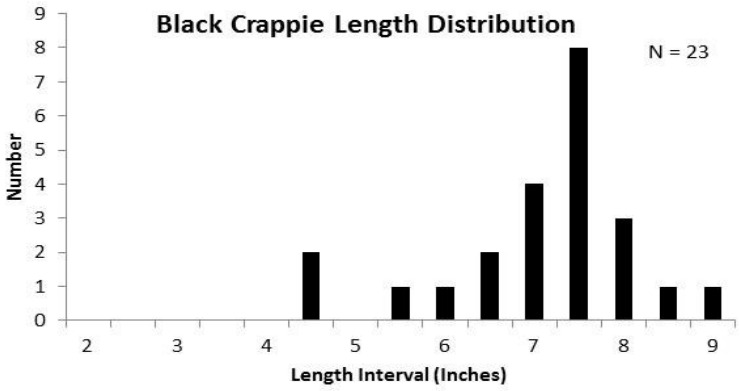
Size Structure Metrics									
Species	Total	Average Length (inches)	Length Range (inches)	Stock and Quality Size (inches)	Stock No	Quality No	PSD	Percentile Rank	Size Rating
BLUEGILL	92	4.9	2.4 - 7.6	3.0 and 6.0	90	32	36%	54th	Moderate
BLACK CRAPPIE	23	7.3	4.6 - 9.1	5.0 and 8.0	21	5	24%	36th	Moderate - Low
LARGEMOUTH BASS	52	13.5	3.3 - 20.2	8.0 and 12.0	45	40	89%	91st	High
YELLOW PERCH	139	5.5	3.5 - 9.1	5.0 and 8.0	97	2	2%	49th	Moderate
PUMPKINSEED	48	4.1	2.3 - 7.3	3.0 and 6.0	40	2	5%	15th	Low
NORTHERN PIKE	27	16.7	10.1 - 24.6	14.0 and 21.0	18	4	22%	37th	Moderate - Low

Abundance Metrics							
Species	CPUE Total (no per mile)	Percentile Rank	Overall Abundance Rating	Length Index	Length Index CPUE	Percentile Rank	Abundance Rating
BLUEGILL	92	51st	Moderate	≥ 7.0	5.0	49th	Moderate
BLACK CRAPPIE	23	79th	Moderate - High	≥ 8.0	5.0	69th	Moderate
YELLOW PERCH	139	97th	High	≥ 8.0	2.0	86th	Moderate - High
LARGEMOUTH BASS	17	56th	Moderate	≥14.0	8.9	83rd	Moderate - High
PUMPKINSEED	48	93rd	High	≥ 7.0	1.0	68th	Moderate
NORTHERN PIKE	9	95th	High	≥ 21.0	1.3	81st	Moderate - High





Growth Metrics						
Species	**Total (N)**	**Length Bin (inches)**	**Mean Age (years)**	**Age Range (years)**	**Percentile Rank**	**Growth Rating**
BLUEGILL	10	6.0	4.3	4 - 5	62nd	Moderate
BLUEGILL	5	7.0	5.2	4 - 6	64th	Moderate
LARGEMOUTH BASS	4	8.0	2.0	2	100th	Fast
LARGEMOUTH BASS	5	14.0	5.8	5 - 7	61st	Moderate



Summary

- A total of 407 fish in 11 species were collected during our surveys. The most frequently encountered and common species were yellow perch (139), bluegill (92), largemouth bass (52), pumpkinseed (48), and northern pike (27).
- All fish captured were native species. Moderate concentrations of Eurasian water milfoil, (an invasive aquatic plant) were encountered.
- Other fish species sampled in low abundance included black crappie (23), central mudminnow (2), golden shiner (6), rock bass (9), and yellow bullhead (2).
- Largemouth bass was the dominant gamefish captured in our survey. Size structure and abundance metrics were found at moderate to high levels. The largest bass sampled was 20.2 inches and 54% of catch were greater than 14.0 inches. Growth for large-mouth bass was moderate when compared to statewide data.
- Twenty seven northern pike were sampled. Fyke netting would be the more appropriate sampling technique to assess this population.
- Yellow perch were captured in moderate to high numbers, but size structure was low with only 2% being over 8.0 inches.
- Panfish populations were mainly comprised of bluegill, black crappie, and yellow perch. Bluegill were found in moderate density and showed average size structure with 36% of our catch greater than 6.0 inches and 6% greater than 7.0 inches. Black crappie were found in average abundance and showed average size with 24% of our catch greater than 8.0 inches. Bluegill growth was slightly above average when compared to statewide data.
- PSDs (> 6.0 inches) for bluegill have increased 250% since the last electrofishing survey done in 2014. Also to note is that CPUE for bluegills decreased 42% since the that same survey. While the density of bluegill has decreased the size structure has improved. Typically, with any fish species, the lower the density the better the size structure.

Management Options

This survey was primarily intended to assess largemouth bass and sunfish populations. Other species are captured but different survey techniques are typically used to better assess their population metrics. Therefore, management recommendations are focused on bass and panfish.

Largemouth Bass

- Management Objective: Maintain largemouth CPUE of bass > 14.0 inches at 5 - 10 per mile. Increase recruitment of young largemouth bass.
- Management Action: It is hoped that natural recruitment will increase in the future to maintain or increase largemouth bass density.

Panfish

- Panfish size structure and abundance metrics were found at moderate levels.
- Management Objective: Maintain bluegill size structure and abun-dance.
- Management Action: none at this time

Other Management Objectives:

- Pensaukee Lake is on an eight year sampling rotation. In addition to the standard SEII electrofishing survey we recommend adding a spring netting survey to assess the adult northern pike population.